

The above described preferred embodiments are intended to illustrate the principles of the invention, but not to limit the scope of the invention. Various other embodiments and modifications to these embodiments may be made by those skilled in the art without departing from the scope of the invention as described.

What is claimed is:

1. A method of installing a landscape planting bed, the method comprising the steps of:

 positioning a substantially continuous panel defining a primary water distributing and a air holding structure over a base surface in an area which is to contain landscape plantings; and

 positioning landscape plants over the substantially continuous panel , wherein the primary water distribution structure and air holding structure consists of a porous and laterally permeable primary water and air holding distribution material contained within the panel and open to receive water from a water source.
2. The method of claim 1 further compromising the step of:

 a) positioning a lower boundary material to reside between the base surface and the primary water and air holding structure material, the lower boundary material comprising a substantially less porous and permeable material having watering charging and air holding characteristics different from the water charging and air holding characteristics of the primary water and air holding structure material.
3. The method of claim 2 further compromising the step of:

- a) positioning an upper boundary material to reside over the principle surface of the primary water and air holding structure material, the upper boundary material comprising a porous and permeable material having watering charging and air holding characteristics different from the water charging and air holding characteristics of the primary water and air holding structure material.
4. The method of claim 3 wherein the steps of positioning the lower boundary material, the primary water distributing and air holding material, and the upper boundary material are performed simultaneously.
5. The method of claim 1 further comprising the step of:
 - a) positioning the a water supply to direct irrigation water into one of the water distributing and air holding panel materials.
6. The method of claim 1 further comprising the step of :
 - a) blocking substantially the outer periphery and lower surface of the water distributing and air holding panel materials.
7. A method of installing a landscape planting bed, the method comprising the steps of:

positioning a substantially continuous water-permeable panel defining a primary water holding and air holding structure over a base surface in an area which is to contain landscape plantings; and

positioning landscape plants over the substantially continuous panel , wherein the primary water distribution structure and air holding structure consists of a porous and laterally permeable primary water and air holding distribution material contained within the panel and open to receive water from a water source, and

further comprising the step of

positioning a water flow blocking material around substantially the entire peripheral edge and lower surface of the primary water distribution structure and air holding structure.

8. The method of claim 7 further comprising the step of:

a) positioning a water supply conduit to direct irrigation water into the primary water distribution structure and air holding structure at a charging point located at the peripheral edge of the primary water distribution structure and air holding structure.

9. The method of claim 7 further comprising the step of:

a) positioning a water supply conduit to direct irrigation water into the primary water distribution structure and air holding structure through the top surface of the primary water distribution structure and air holding structure.

10. A method of producing a landscape planting ecosystem, the method comprising the steps of:

positioning a substantially continuous water distribution structure and air holding structure panel over a base surface in an area is to contain landscape plantings, positioning a selection of landscape planting materials comprising growing medium and live landscape plantings over the mat; and providing a water inlet to said panel such that water will be distributed evenly in the area of the panel.

11. An irrigation method comprising the steps of:

supplying irrigation water at a charge rate into a primary water distribution structure and air holding structure associated with a continuous water-permeable panel having a lateral areas residing in the root zone of a planting area to be irrigated and extending

throughout the area, the panel forming a discontinuity with the material above the panel and below the panel; and

distributing the irrigation water throughout the lateral area of the panel through the primary porous structure in response to the irrigation water supplied at a charge rate such that the water evenly fills the panel, wherein the step of distributing the irrigation water through the lateral area of the panel includes the step of moving the water through the porous material and trapping air in the interconnected cellular structure of the primary porous structure such as to create available air for landscape plant roots, and wherein the step of supplying irrigation water to the primary water distribution structure and air holding structure comprises directing irrigation water from a supply conduit into the panel primary water distribution structure and air holding structure, and further comprising the step of

blocking substantially all of the peripheral edge and lower surface of the panel.

12. An irrigation method comprising the steps of:

supplying irrigation water at a charge rate into a primary water distribution structure and air holding structure associated with a continuous water-permeable panel having a lateral area residing in the root zone of a landscape planting area to be irrigated and extending throughout the area, the panel forming a discontinuity with the material above the panel and the material below the panel; and

distributing the irrigation water throughout the lateral area of the panel through the primary water distribution structure and air holding structure in response to the irrigation water supplied at a charge rate such that the water is supplied evenly to the root zone,

wherein the step of distributing the irrigation water through the lateral area of the panel includes the step of distributing irrigation water into an area of the primary water distribution structure and air holding structure where the root structure of the landscape plant material has been located so as to provide the irrigation water and air to be available to the plant material.

13. An irrigation method comprising the steps of:

supplying irrigation water at a charge rate into a primary water distribution structure and air holding structure associated with a continuous water-permeable panel having a lateral area residing in the root zone of an area to be irrigated and extending throughout the planting bed area, the panel forming a discontinuity with the material above the mat and the material below the mat; and

distributing the irrigation water throughout the lateral area of the panel through a primary water distribution structure integrally located within the mat in response to the irrigation water supplied at the charge rate such that the water is evenly applied to the root zone.

14. The method of claim 13 wherein the step of distributing the irrigation water through the lateral area of the mat includes the step of:

a) distributing irrigation water through a controlled release device embedded within the primary water distribution structure and air holding structure.

15. The method of claim 14 wherein the controlled release device is a flow regulating, pressure compensated emission rate module which emits water at a controlled rate.

16. The method of claim 15 wherein the step of supplying irrigation water to the pressure compensated emission rate module comprises:

a) directing irrigation water from a water supply conduit into the flow regulating, pressure compensated emission rate module.

17. the method of claim 15 including the step of:

a) distributing the irrigation water from the primary water distribution structure and air holding structure through an upper boundary of the panel, the upper boundary material having water distribution structure and air holding structure characteristics different from the primary water distribution structure and air holding structure.

18. An irrigation apparatus adapted to be incorporated into the root zone of a landscape planting area to be irrigated, the apparatus comprising:

a substantially continuous panel which may be positioned substantially parallel to the area to be irrigated;

a charge inlet associated with the panel; and

a primary water distribution structure and air holding structure comprising a porous and laterally permeable material selected from a group consisting of an open cell foam material or reticulated material; and the panel includes a lower boundary material selected from a substantially less porous material selected from a group consisting of closed cell foam material or polymeric plastic material.

19. The apparatus of claim 18 wherein the porous and laterally permeable primary water distribution material is selected from the group consisting of an open cell foam material, a reticulated material, and a granular material.

20. The apparatus of claim 18 further comprising;

a) a peripheral edge boundary material selected from a substantially less porous material selected from a group consisting of a closed cell foam material or polymeric plastic material.

21. The apparatus of claim 18 where the charge inlet is located along the periphery edge of the panel.

22. The apparatus of claim 18 wherein the porous and laterally permeable primary water distribution material is an open cell foam material or reticulated material with webbed cellular structure such that when filled with water or completely submerged in water air is trapped by the gaps and spaces in the material.

23. An irrigation apparatus adapted to be incorporated into the root zone of a landscape planting area to be irrigated, the apparatus comprising:

a substantially continuous panel for encompassing a soil area to be irrigated and which may be positioned substantially parallel to the area to be irrigated;

a charge inlet associated with the panel for supplying water which is distributed continuously throughout the area of the panel; and

a primary water distribution structure and air holding structure comprising a porous and laterally permeable material selected from a group consisting of an open cell foam and reticulated material for receiving water through the charge inlet, when the irrigation water is received at an operating flow rate, distributing the irrigation water substantially throughout the lateral area of the panel continuously.

24. The apparatus of claim 23 wherein the panel includes;

- a) a peripheral and lower boundary material located substantially around the entire periphery and lower area of the panel, the boundary material having water charging characteristics different from the primary water distribution material.
25. The apparatus of claim 24 where the boundary material comprises a material which is less permeable than the primary water distribution material.
26. The apparatus of claim 23 wherein the panel includes;
- a) an upper water and air holding structure of the panel includes recessed areas into which the landscape plant material roots can be located.
27. The apparatus of claim 26 wherein the upper panel includes;
- a) recessed areas that are created at the time of installation by the person installing the landscape plants.
28. The apparatus of claim 26 wherein the upper panel includes;
- a) recessed areas for the installing of the landscape plants.
29. The apparatus of claim 23 where the charge inlet is the entire upper surface of the panel.
30. The apparatus of claim 23 where the charge inlet is through the bottom surface of the panel.
31. The apparatus of claim 23 where the primary porous and laterally permeable primary water distribution material is an open cell foam material or reticulated material with webbed cellular structure such that when filled with water or completely submerged in water air is trapped by the gaps and spaces in the material

32. The apparatus of claim 26 where the upper porous and laterally permeable primary water distribution material is selected from the group consisting of an open cell foam material, a reticulated material, and a granular material.
33. The apparatus of claim 23 where the primary porous and laterally permeable primary water distribution material is an open cell foam material or reticulated material with webbed cellular structure such that when filled with water or completely submerged in water air is trapped by the gaps and spaces in the material.
34. The apparatus of claim 23 wherein the charge inlet is a flow controlled emission device which regulates the amount of irrigation water entering the panel.
35. The apparatus of claim 26 where the upper porous and laterally permeable primary water distribution material is an open cell foam material or reticulated material with webbed cellular structure such that when filled with water or completely submerged in water air is trapped by the gaps and spaces in the material.
36. . An irrigation apparatus adapted to be incorporated into the root zone of a landscape planting area to be irrigated, the apparatus comprising:
- a substantially continuous panel which may be positioned substantially parallel to the area to be irrigated;
 - a charge inlet associated with the panel; and
 - a primary water distribution structure and air holding structure comprising a porous and laterally permeable material selected from a group consisting of an open cell foam material or reticulated material; and the panel includes a lower boundary material selected from a substantially less porous material selected from a group consisting of closed cell foam material or polymeric plastic material and an upper water and air

holding structure selected from a group consisting of an open cell foam material or reticulated material.

37. The apparatus of claim 36 wherein the upper water and air holding structure of the panel includes recessed areas into which the landscape plant material roots can be located.

38. The apparatus of claim 37 where the recessed areas are created at the time of installation by the person installing the landscape plants.

39. The apparatus of claim 36 where the charge inlet is the entire upper surface of the panel.

40. The apparatus of claim 36 where the charge inlet is through the bottom surface of the panel.

41. The apparatus of claim 37 where the upper porous and laterally permeable primary water distribution material is an open cell foam material or reticulated material with webbed cellular structure such that when filled with water or completely submerged in water air is trapped by the gaps and spaces in the material

42. The apparatus of claim 36 where the porous and laterally permeable primary water distribution material is selected from the group consisting of an open cell foam material, a reticulated material, and a granular material.

43. The apparatus 42 where the porous and laterally permeable primary water distribution material is an open cell foam material or reticulated material with webbed cellular structure such that when filled with water or completely submerged in water air is trapped by the gaps and spaces in the material.

44. The apparatus of claim 36 wherein the charge inlet is a flow controlled emission device which regulates the amount of irrigation water entering the panel.